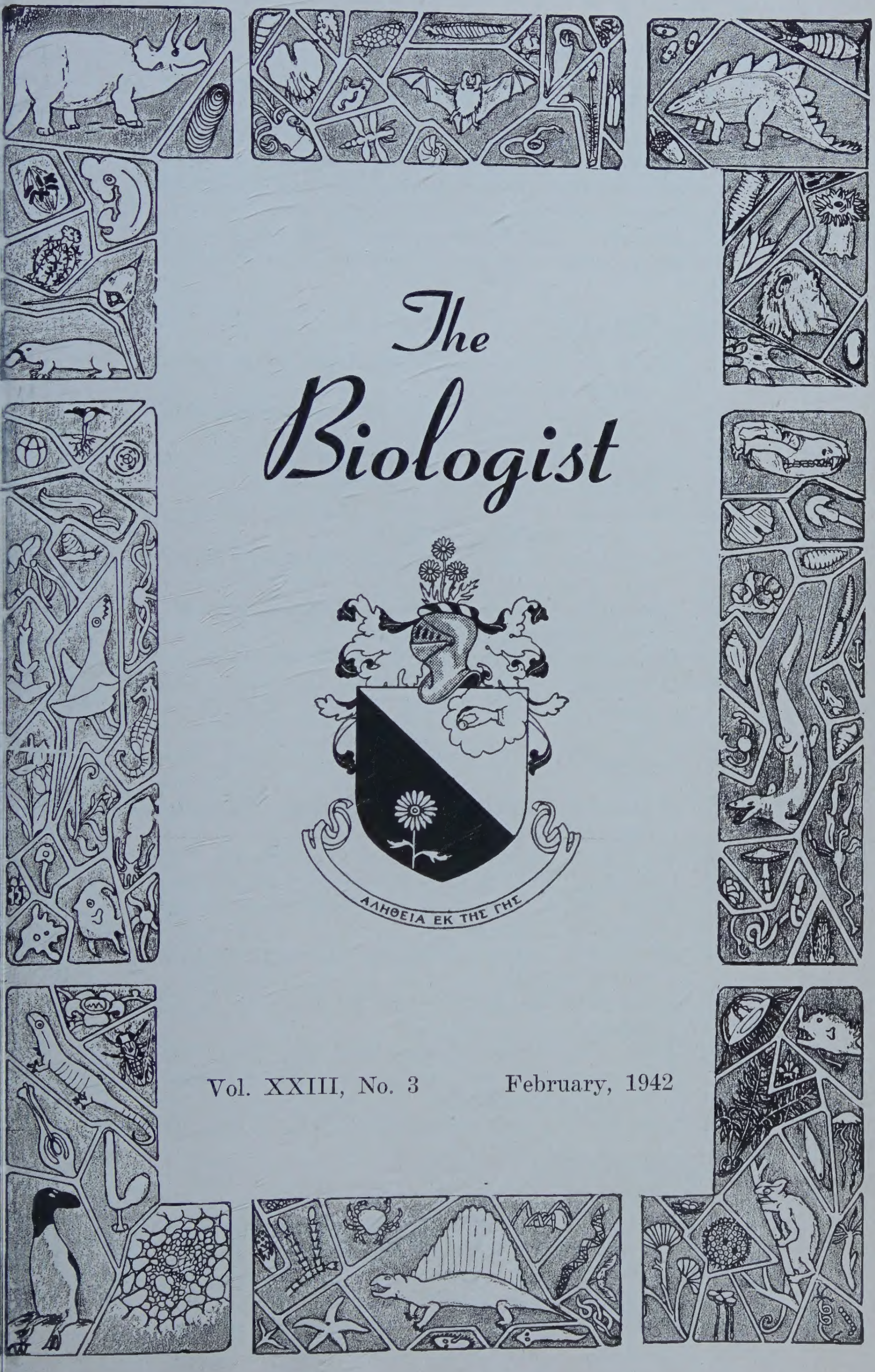
FEATURING—CONVENTION NEWS

# The Biologist



Vol. XXIII, No. 3 February, 1942

# *Phi Sigma*

## BIOLOGICAL HONOR SOCIETY

*"The object of Phi Sigma is to promote interest in biological research. Although originally designated as an honorary biological research society, it should now be considered as a working guild of biologists interested in research. In effect, election to Phi Sigma should be an opportunity for better work, rather than merely election to an honorary society."*

## Mile Posts:

| | |
|---|---|
| 1915 | March 17, Alpha Chapter organized, Ohio State University, Columbus. |
| 1916 | May, Central Governing Body organized, BIOLOGIST first issued. |
| 1917 | June, last War-time BIOLOGIST issued. |
| 1921 | February, BIOLOGIST revived. |
| 1924 | December, First National Meeting, Constitution revised, Washington, D. C. |
| 1925 | December, Second National Meeting, First Science Program, Kansas City. |
| 1926 | December, Third National Meeting, Second Science Program, Philadelphia. |
| 1927 | December, Third Science Program, Nashville. |
| 1928 | December, Fourth National Meeting, Coat-of-Arms adopted, Fourth Science Program, New York. |
| 1930 | January, Council Meeting, Ritual Revised, Norman, Okla. |
| | December, Fifth National Meeting, Fifth Science Program, Cleveland. |
| 1931 | Phi Sigma Letters Registered, U. S. Patent Office. |
| 1932 | December, Sixth Science Program, Atlantic City. |
| 1933 | June, Sixth National Meeting, Seventh Science Program, Chicago. |
| 1935 | December, Seventh National Meeting, Eighth Science Program, St. Louis. |
| 1937 | December, Eighth National Meeting, Ninth Science Program, Indianapolis. |
| 1939 | December, Ninth National Meeting, Tenth Science Program, Silver Anniversary, Ohio State University, Columbus. |
| 1942 | December, Tenth National Meeting, Dallas, Texas. |

## Expansion:

The Constitution provides that: "An active chapter may be established in any institution of learning which requires for graduation the equivalent of four years of collegiate work, and which is equipped with facilities for research work. - - - - Any petitioning group must be active for at least one year before it may be granted a charter."

# THE BIOLOGIST

Vol. XXIII Denver, Colo., February, 1942 No. 3

Published by the Phi Sigma Society, an organization devoted to the promotion of interest in biological research, founded at Ohio State University, March 17, 1915. The Biologist is the official quarterly publication of the society, issued ordinarily in October, December, February and April, as a medium of exchange between chapters, as an interpreter of Council policies, and as a stimulus to the fellowship in science for which Phi Sigma stands.

## *Council*

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**Dr. Edna Higbee**
Department of Biology,
The University of Pittsburgh,
Pittsburgh, Pennsylvania

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# *Directory*

## OF ALL ACTIVE AND INACTIVE CHAPTERS

*The list of chapter officers for this school year will be found in the CHAPTER NEWS section of Vol. XXIII, No. 2.*

### ALPHA

**Ohio State University, Columbus, Ohio, founded March 17, 1915, (Inactive).**

### BETA

**University of Michigan, Ann Arbor, Michigan, founded June 3, 1916.**

### DELTA

**University of Maine, Orono, Maine, founded January 27, 1917, (Inactive).**

### EPSILON

**University of Denver, Denver, Colorado, founded March 5, 1917.**

### ZETA

**University of Wisconsin, Madison, Wisconsin, founded May 30, 1917**

### ETA

**University of Akron, Akron, Ohio, founded April 20, 1921.**

### THETA

**Michigan State College, East Lansing, Michigan, founded April 9, 1921, (Inactive).**

### IOTA

**Washington University, St. Louis, Missouri, founded May 28, 1921.**

### KAPPA

**University of Kansas, Lawrence, Kansas, founded May 31, 1921.**

### LAMBDA

**Montana State University, Missoula, Montana, founded May 4, 1921.**

### MU

**University of California, Berkeley, California, founded April 27, 1922.**

### NU

**Washington and Jefferson College, Washington, Pennsylvania, founded May 11, 1922**

### XI

**University of Nebraska, Lincoln, Nebraska, founded May 3, 1934, (Inactive).**

### OMICRON

**University of North Dakota, Grand Forks, North Dakota, founded May 26, 1924, (Inactive).**

### PI

**Emory University, Georgia, founded January 3, 1925.**

### RHO

**University of Illinois, Urbana, Illinois, founded March 28, 1925.**

### SIGMA

**University of Florida, Gainesville, Florida, founded December 4, 1925.**

### TAU

**Duke University,** Durham, North Carolina, founded March 4, 1926.

### UPSILON

**Miami University,** Oxford, Ohio, founded May 7, 1926.

### PHI

**University of New Hampshire,** Durham, New Hampshire, founded May 21, 1926.

### CHI

**Montana State College,** Bozeman, Montana, founded February 11, 1927.

### PSI

**University of Washington,** Seattle, Washington, founded April 7, 1928.

### OMEGA

**University of Oklahoma,** Norman, Oklahoma, founded March 24, 1928.

### ALPHA ALPHA

**University of Southern California,** Los Angeles, California, founded May 17, 1930.

### ALPHA BETA

**Mount Union College,** Alliance, Ohio, founded May 17, 1928.

### ALPHA GAMMA

**University of South Dakota,** Vermillion, South Dakota, founded May 15, 1928, (Inactive)

### ALPHA DELTA

**Lawrence College,** Appleton, Wisconsin, founded March 7, 1929, (Inactive).

### ALPHA EPSILON

**University of Pittsburgh,** Pittsburgh, Pennsylvania, founded March 23, 1929.

### ALPHA ZETA

**College of William and Mary,** Williamsburg, Virginia, founded April 19, 1930, (Inactive).

### ALPHA ETA

**Oklahoma Agricultural and Mechanical College,** Stillwater, Oklahoma,
founded March 13, 1930.

### ALPHA THETA

**State College of Washington,** Pullman, Washington, founded May, 1330.

### ALPHA IOTA

**Bucknell University,** Lewisburg, Pennsylvania, founded January 9, 1932.

### ALPHA KAPPA

**Hunter College,** New York City, founded January 8, 1932.

### ALPHA LAMBDA

**University of Utah,** Salt Lake City, Utah, founded February 13, 1932.

### ALPHA MU

**University and State College of Oregon,** Eugene-Portland-Corvallis, Oregon,
founded November 18, 1933.

### ALPHA NU

**University of New Mexico,** Albuquerque, New Mexico, founded April 21, 1935.

### ALPHA XI

**Rhode Island State College,** Kingston, Rhode Island, founded May 17, 1935.

### ALPHA OMICRON

**Marquette University,** Milwaukee, Wisconsin, founded June 18, 1938.

### ALPHA PI

**University of Colorado,** Boulder, Colorado, founded May 24, 1941.

# Report of the Tenth National Meeting, Dallas, Texas, January 1, 1942

The list of delegates and chapters represented follows: Beta, Frances E. Wynne; Epsilon, Elizabeth Love; Zeta, Charles W. Lines, (deceased, see page 131 for obituary); Eta, George Anastos; Kappa, Ronald L. McGregor; Lambda, Vivian Medlin; Mu, Jack R. Harlan; Nu, Alvin Bales; Rho, Marian F. James; Sigma, Alfred P. Juliano; Upsilon, James E. Canright; Phi, Richard Stroud; Chi, Elizabeth Carter; Psi, Eloise Kuntz; Omega, Anna Fisher; Alpha Alpha, Audrey E. Streedain; Alpha Beta, Walter A. Wichern, Jr.; Alpha Epsilon, Albert G. Smith; Alpha Eta, Roger Davy; Alpha Theta, Stanley D. Beck; Alpha Iota, Josephine V. Bagg; Alpha Kappa, Anita Zorzoli; Alpha Lambda, H. W. Setzer; Alpha Mu, John Merkle; Alpha Nu, R. D. Spensley; Alpha Xi, Saul B. Barber; Alpha Omicron, Alphonse L. Heun; Alpha Pi, R. Forrest Davis.

Meeting called to order at 9:05 A. M. by Chancellor Paul A. Warren.

Committee on credentials announced: Stewart, Chr.; Barber, Alpha Xi; Zorzoli, Alpha Kappa.

Committee on credentials reported quorum, with 18 delegates present.

Auditing committee appointed: Wynne, Beta, Chr.; Lines, Zeta; Spensley, Alpha Nu.

Committee on Nominations appointed: Smith, Alpha Epsilon, Chr.; Fisher, Omega; Kuntz, Usi; Medlin, Lambda; James, Rho.

Announcement of initiation following banquet for Dr. M. Ruiz Castenada as an honorary member. Initiation team appointed: Acting President—Harlan, Mu; Acting Vice-President, McGregor, Kappa; Acting Secretary, Medlin, Lambda; Acting Treasurer, Juliano, Sigma.

National Officers introduced.

Remarks by Lt. Col. A. M. Keefe, past Editor and Vice-Chancellor. Conserve financial resources. Keep up or enlarge membership of every chapter.

Motion to accept report of National Secretary (previously sent to chapters) made by Kuntz, Psi; seconded by Lines, Zeta, carried.

Motion to accept report of National Treasurer (previously sent to chapters) made by Juliano, Sigma; seconded by Canright, Upsilon; carried.

The Chancellor announced the following National Council Action—

1. The National Council voted to authorize the National Treasurer to invest any inactive funds of the Society in Defense or other U. S. bonds.

2. The National Council voted to recommend to each chapter in the interest of student morale and self preservation to waive for the emergency such local eligibility requirements as would unduly limit chapter membership.

Discussion by—Alpha Kappa, Alpha Iota, Sigma, Zeta, Phi, Nu, Kappa, Rho, Alpha Lambda, Psi, Nu, Keefe, Warren Stewart.

(This recommendation refers only to *local* membership restrictions)

3. The National Council recommended the adoption of the following resolution.—The present crucial situation demands something more of our membership than mere vocal affirmation of willingness to serve. It is incumbent upon every member, active, faculty, honorary and alumnus, to justify the past existence of this organization by turning his intellectual endowment and his scientific training to the furtherance of the war aims of the nation. In view of the great demand for personnel well trained in biology, it is the strong conviction of the Phi Sigma Society in National Meeting assembled, that the best method of accomplishing this end lies in the strong encouragement of students to obtain as much biological training as is possible.

Motion to adopt resolution made by Beta, seconded by Alpha Epsilon.

Discussion by Rho and Sigma. Carried.

4. The National Council recommended that effective with the close of this National Meeting the Council be granted executive power to suspend for the period of the emergency the enforcement of such provisions of the Constitution and By-laws as may be necessary to safeguard the interests of the Society, the students and the nation. This may include such items, for example, as the following:

A. The continued suspension of General Academic Assessment.

B. Suspension of publication of the *Biologist*.

C. Arrangements for National Meetings.

D. Eligibility to membership.

Motion to adopt this recommendation made by Upsilon, seconded by Alpha Eta.

Discussion by Mu, Chi, Warren, Alpha Kappa, Beta, Omega, Alpha Alpha, Alpha Epsilon, Alpha Iota, Psi, Phi.

Carried unanimously.

(Chancellor Warren explained that National Council will act on individual chapter requests; it may also take actions if necessary on matters not initiated by chapters. The latter would be of *general* though temporary application.)

The question of programs and activities in the past and as they will be affected by war discussed by Alpha Kappa, Chi, Mu, Rho, Alpha Iota, Phi, Sigma, Alpha Alpha, Eta, Alpha Xi, Alpha Lambda, Alpha Epsilon, Alpha Mu.

Suggestion made by delegates that National Secretary write letter to all chapters requesting information regarding names and addresses of members in service, these to be published in the *Biologist*.

Meeting adjourned at 11:46 A. M.

Afternoon business meeting called to order by Vice-Chancellor Barkley at 1:30 P. M.

Stewart reported for committee on credentials all delegates present except those from Pi and Tau; report accepted.

The auditing Committee reported the books in good order as checked by Marjorie Starr, registered accountant on October 10, 1941, and also for entries since that date.

Report accepted.

Nominating Committee reported the following nominations:

For Chancellor—Dr. Warren

For Treasurer—Mr. Stewart.

There were no nominations from the floor. Motion to re-elect these officers unanimously made by Omega, seconded by Zeta and carried unanimously.

The Nominating Committee moved that the convention give a vote of thanks to the National Council for their past service, and, in view of the resolution passed this morning, a vote of confidence for the future.

Motion carried.

Discussion of types of membership, further publication of the *Biologist*, and time of next National Meeting by Psi, Mu, Zeta, Alpha Nu, Alpha Eta, Beta, Alpha Pi, Stewart. (Majority of delegates wanted Phi Sigma meetings after A. A. A. S. Meetings.)

Meeting adjourned at 2:10 P. M. for scientific session.

* * *

# National Banquet

The National Meeting of 1942 proved to be one of unusual occurrences, in that the sombre note of, "During the duration," crept in and dominated. This epocal day should go down in Phi Sigma's history as one in which business was transacted in a friendly manner, without the usual number of "bombshells," fault finding et cetera.

By the time the afternoon program of papers was over the delegates and national officers were ready to retire and dress for the banquet, which was the closing event of the meetings. This banquet proved to be one of the happiest and most distinctive in the log of Phi Sigma social affairs. A new departure occurred in the initiation of an honorary member of the Society. Lambda chapter presented Dr. M. Ruiz Castaneda for honorary membership in their chapter. The acting officers in charge of the initiation were Jack R. Harlan, Ronald L. McGregor, Vivian Medlin, and Alfred P. Juliano.

Following the initiation Chancellor Warren introduced Mr. Stewart; Lt. Col. Keefe; Dr. Clare, Faculty Advisor from the University of Southern California; R. Forrest Davis, delegate from the youngest chapter; Dr. Ortenburger; and the Acting Editor of the *Biologist*. Introductions of the delegates, guests, and two sets of newest newlyweds attending the meetings were then made.

Attention was brought to the fact that our National President, Dr. Leon J. Cole, was the first National President to ever attend all of the meetings of a convention.

Dr. Barkley, the Vice-Chancellor, was then introduced and gave a short talk introducing the speaker of the evening, Dr. M. Ruiz Castaneda. Dr. Castaneda's talk on Typhus was one of the most outstanding presented at any of the meetings of the American Association for the Advancement of Science. A new method of mass-producing typhus serum in quantities large enough to prevent wartime epidemics such as reportedly is threatening the German army was the topic. Dr. Castaneda has developed a method by which two ordinary laboratory technicians could produce 75,000 doses of anti-typhus serum in a week. Each dose would furnish protection for a soldier for a full year. By this new method serum is produced in the lungs of various rodents. The technicians inoculate the animals through the nose, infecting the lungs. At a certain stage of development the lungs are removed and macerated. The product is whirled in a centrifuge to separate the antitoxin from the refuse. The serum has already been experimentally tested on man.

We are sorry every member of Phi Sigma was not present to witness first hand the comradely fellowship between members of the national council and delegates which leads to wise guidance on the part of all.

Dr. Clare recited the following poem which seemed very fitting since we did not know if we would meet again at the regular time or not.

"One ship drives east another drives west
With the self same wind that blows.
'Tis the set of the sail and not the gale
That tells us which way it goes.
Like the winds of the sea are the ways of fate,

As we journey along through life;
'Tis the set of the soul determines the
goal
And neither the calm nor the strife.
From "A Road of Remembrance"
Elizabeth W. Ross.

### DR. M. RUIZ CASTENADA

Dr. M. Ruiz Castenada, elected to Honorary membership by Lambda Chapter, is a member of the medical research department of the Mexico City Hospital and has been a student of typhus control for a decade. Dr. Castenada is a graduate of the University of Mexico and studied at Harvard University from 1930 to 1936. He collaborated with Dr. Zinsser in developing an earlier method of deriving typhus serum from the peritoneum of affected rodents.

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# Special Prophylaxis and Therapy According to the Concept of Immunological Unity in Typhus Fever

ABSTRACT
of
Address Given by

DR. M. RUIZ CASTENADA
Department of Medical Research
Hospital General, Mexico, D. F.

Special prophylaxis of typhus in the United States is of secondary importance since the prevaling variety is transmitted to man directly from infected rats, while in other countries where hygienic conditions are inadequate, the presence of lice may start epidemics of high mortality. We have found in Mexico that when lice are prevalent the murine virus not only becomes highly virulent for men but may acquire the properties of European typhus. The problem of specific prophylaxis, under these circumstances, would be greatly complicated if the experimental differences found between murine and epidemic typhus would require the use of polyvalent vaccines.

However, we consider the opinions about immunological differences in the typhus strains greatly exaggerated. Even between rickettsiae such as those of Spotted Fever and typhus, the relationship has been found to be closer than formerly accepted. When guinea-pigs recovered from typhus have been reinoculated with Spotted Fever we have observed that the majority survive in contrast with the high mortality rate presented in the controls. When a highly virulent strain of Spotted Fever was submitted to serial transfers in typhus immune guinea-pigs the strain faded away after several generations. However, the virulence for normals remained unaffected as shown by transfers from immune to normal guinea-pigs.

If such relationship can be detected between two rickettsial diseases so specifically different, one may be justified in considering that the minor immunological differences found between members of the typhus group must not be taken as basis for considering that murine vaccines are not suitable antigens against all varieties of typhus.

There is no doubt that the epidemic infection requires more intensive vaccination than murine typhus, but it must be considered that it has a tendency to produce generalized infection, with brain lesions, while murine rickettsiae produce a local growth in the tunica vaginalis which activates the process of immunity.

The immunization can be carried out successfully by means of vaccines sufficiently rich in murine antigen, as shown not only in guinea-pigs but by experimental infection in vaccinated persons. The vaccine prepared in our laboratory with an "intermedial strain" with orchitic properties has been successfully tested against endemic and epidemic strains in Mexico and also in South Africa, where it was found that protection lasted for a year. In the United States and in Mexico it has been demonstrated that 2 weekly doses of vaccine protected guinea-pigs against the classical "Breinl strain". In human beings it has been shown that the vaccine protects against the experimental inoculation of the homologous strain and also against Bolivian typhus which has the same properties as the European virus.

The method of preparation of the vaccine has been constantly improved. It has been found that in order to produce larger quantities of rickettsiae it is necessary to inoculate rats into the lungs with a very rich inoculum. Therefore, the stock strain is transferred, first into the peritoneum of x-rayed rats from which mice are inoculated into the nostrils, then lung emulsions from suitable mice are given intranasally to rats. Rickettsiae grow in the bronchial, alveolar and endothelial cells in such profusion that it is possible to purify them and prepare suspensions which are comparable to those obtained with ordinary bacteria. Such rickettsiae suspensions can be prepared for tube agglutination tests and even for slide tests applied to rapid diagnosis of typhus. Also it has been possible to prepare extracts with which slide precipitation tests of great specificity have been performed.

The large quantities of antigen obtained by the lung method have given opportunity to hyper-immunize horses by intravenous injection of large quantities of fairly pure rickettsiae. The serum has proved to possess high neutralizing titres against typhus. In recent experiments it was found that the serum protected better against epidemic typhus than against the homologus strain. These unexpected results are very interesting since in early work it was found that the anti-murine serum failed to protect against epidemic typhus. This was one of the reasons given for considering that there were immunological differences between the two types of typhus.

The use of hyper-immune serum in the treatment of typhus cases has given results which are encouraging. The early administration of large doses of serum has produced rapid amelioration and later disappearance of all subjective symptoms and usually a return of the temperature to normal within a few days. However, the majority of the cases are diagnosed rather late and in these the results are not as striking.

In most cases, no matter how severe the infection might be and regardless of the moment of application of the serum there has been considerable improvement in the condition of the patients.

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# Abstracts of Papers Presented

## THE INCIDENCE OF *DIPLOCOCCUS PNEUMONIAE* WEICHSELBAUM IN A GROUP OF INDIVIDUALS AT MONTANA STATE COLLEGE

By Elizabeth M. Carter

A comprehensive survey was carried out from October 1940 through April 1941 on a group of 54 individuals to determine the carrier incidence of *Diplococcus pneumoniae* in the throats of these people.

The group was composed of some members of the college faculty, some members of the clerical staff, but mostly it was made up of college students. Two methods, the gargle and the swab methods with modifications developed by the author, of obtaining cultures of *Diplococcus pneumoniae* were used in order that the relative merits of each might be determined.

Of the 54 individuals tested, 76 per cent (41) were carriers of *Diplococcus pneumoniae* at one time or another during the survey.

Experimental evidence is presented which indicates that neither the gargle nor the swab method can be depended on to secure cultures from 100 per cent of the carriers, and that both methods should be used simultaneously when determining the carrier incidence. Evidence is also presented which shows that beef heart infusion broth enriched with beef serum gives a much higher per cent of positive cultures than does the unenriched broth.

## OBSERVATIONS ON SEASONAL STARCH STORAGE IN PLANT TISSUES

By John Merkle

Beginning in January, 1941, observations were made at two-week intervals, of starch storage in various tissues of one and two-year old stems of six native woody plants, to determine its presence or absence during the growing season.

Thin sections were cut with the sliding microtime, mounted, stained with iodine solution, and examined with the compound microscope to determine the exact tissues in which starch was located.

Starch was stored in the pith, xylem rays and parenchyma cells, phloem rays and parenchyma cells, and in the primary cortex. As enlargement of buds continued, the amount of starch was reduced and by full flowering period starch had disappeared from all the tissues. In order of disappearance, starch left the phloem, cortex, pith, and xylem.

In order of reappearance, starch was found in pith and xylem in early summer, phloem and cortex in late fall. As yet (Dec. 7) starch storage is less abundant, at least in phloem and cortex, than last January.

## THE DISTRIBUTION OF THE ROTATORIA IN THE STATE OF WASHINGTON

*By* Eloise Kuntz

The rotifers found in Washington are discussed with relation to their ecological distribution.

The marine fauna is limited, but very characteristic, with *Synchaeta vorax* Rousselet the dominant species. Several species of Colurella occur in sand in the intertidal zone and in tide pools. The appearance of adventitious species from inflowing rivers is also discussed.

The freshwater bodies of water are grouped into bogs; lakes or ponds of low salt and mineral content; and bodies of water with high alkalinity. The dominant and characteristic rotifers for each type are given.

A chain of lakes in the Grand Coulee area, exhibiting a graduation from soft to extremely alkaline water, are discussed with relation to the rotifer content.

## PROGRESS REPORT: RETURNS FROM MARKED SNAKES

*By* H. W. Setzer

A total of 452 rattlesnakes, (*Crotalus v. lutosus*) 210 striped racers, (*Maticophis t. teeniatus*) 8 Mormon racers, (*Columber constrictor mormon*) and 1 gopher snake (*Pituophis catenifer deserticola*) have been tattooed with a number and released at a den in Tooele County, Utah, during a period between April 12, 1940, and October 19, 1941, by Dr. A. M. Woodbury and the writer. Of these, 122 rattlesnakes and 54 striped racers have been recaptured. Based upon the ratio of recaptures to new snakes found, it is estimated that the winter den population includes 900 rattlesnakes, 600 striped racers and a few Mormon racers and gopher snakes. Counts of rattles and measurements of recaptured snakes have yielded data that indicate that snakes grow much more rapidly during the first two or three years of life than later. The average growth of recaptured rattlesnakes was 1.07 inches in one summer, 1.22 inches in a year, and 2.21 inches for two summers and one winter.

## A STUDY OF A POPULATION OF YELLOW PERCH (*Perca flavescens* Mitchell)

*By* Richard H. Stroud

A population of yellow perch from Shawton Pond, in New Hampshire, was studied in an effort to determine the role of these fish as a possible limiting factor to game fish production in this area. The results of this investigation are as follows.

The standard length was determined to be 0.827 of the total length. The body/head ratio was found to be 3.20 and no significant variaton due to age or sex was observed. The average standard lengths by year-classes were found to be 59 mm, 82 mm, and 107 mm at the end of the first, second, third, and fourth year of growth, respectively. Females had grown at a significantly faster rate than males after the first year of life. Fish of the year constituted 38.2% of the sample and fish of the fourth year represented 41.4% of the population. Only 2.5% of the sample population was older than four years and only 1.33% (five fish) were six or more inches in length. Sexual maturity may have been attained in the second year of life. The males were the heavier for their lengths and the more numerous (1.39 to 1.).

Comparison with other data recorded for other environments shows that growth proceeded at a very slow rate after the first year of life and resulted in a stunted population. Such a situation apparently postulates the presence of an overabundance of perch within the habitat.

## NOTES ON THE MOSS FLORA OF NORTH-CENTRAL OKLAHOMA

*By* ROGER H. DAVY

There are no previous records of bryophyte collections in Kay, Osage, Payne, and Pawnee counties in north-central Oklahoma. This region is on a boundary line of an oak-hickory savannah and western prairie grassland, in which the climatic factors do not favor abundant moss growth. A list of fifty-six species is given with habitat anotations. No new species are reported for the state; the list represents an extention of the known distribution of these species in the state.

## DISTRIBUTION IN THE GENUS, *Drepanocladus*

*By* FRANCES E. WYNNE

These phytogeographic studies were undertaken in connection with a monograph of *Drepanocladus*, a genus of mosses, which is apparently restricted to the glaciated portions of the world. An attempt is made to explain this distribution.

In eastern North America *Drepanocladus* does not occur south of the maximum extent of Pleistocene glaciation. Excellent examples of this correlation are found in Ohio, Indiana, and Pennsylvania where the moss occurs only in the glaciated parts of the states. In the western United States apparently localized mountain glaciation has affected the distribution of the genus.

Pleistocene glaciation seems to be the most important factor influencing the present range of *Dhepanocladus*. As a result of the ice age two types of distribution are apparent: (1) that of *Bryoxiphium norvegicum*, *Hookeria acutifolia*, *Brothera Leana* which are static, well-defined species in relic locations and (2) that of *Drepanocladus* and *Calliergon* which are, in general, plastic variable genera widespread over glaciated areas.

The species of *Drepanocladus* may be divided into two groups—arctic-alpine and boreal-montane. Among the arctic-alpine species are *D. badius*, *latinerve*, *brevifolius*, *Berggrenii*, *latifolius, and lycopodioides*; and boreal-montane species are *D. aduncus*, *fluitans*, *exannulatus*, *revolvens*, *intermedius*.

The arctic alpine species are stable and well-defined, and are restricted in North America to the arctic archipelago and the northern part of the glaciated territory. The boreal montane species are extremely variable and are widespread over the entire glaciated part of North America. There appears to be a correlation of (1) stability of specific characters with restricted distribution and (2) variability with widespread distribution. The difference of variability and adaptability of a species may be, in this case, dependent on the number and variety of biotypes surviving Pleistocene glaciation. Thus difference in distribution may be, at least in part, the expression of genetical differences.

Another aspect to be considered is that the boggy, swampy type of habitat required by *Drepanocladus* occurs only in the glaciated parts of the world.

## TEXTILE FIBERS OF THE SPIRO MOUND.

*By* MARCELOTTE LEAKE

Identification of fibers in textiles recovered from archeological sites has received very little attention in the Western hemisphere and information concerning specific plant and animal fibers is very scant. The identification of fibers in archaic textiles, however, is of value to the anthropologist in determining the extent to which a past culture has utilized its environment, and may sometimes indicate materials that have been imported by an extinct culture.

This examination of Spiro Mound textiles is the first analysis of the fabrics recovered by the Archeological Project of the University of Oklahoma, and should be the basis of a wider knowledge of fiber characteristics.

The Trowbridge Collection from the Spiro area, accumulated before methodical excavation of the Spiro Mound by the University of Oklahoma, has been analyzed at the Smithsonian Institution. A report of this analysis, published in *American Antiquity* (1938-39), described the construction of thread used in Spiro fabrics. The thread was made by wrapping rabbit hair, an unidentified hair, and feathers around plant fibers, and has been recorded only for Spiro. Witford at the American Museum of Natural History identified fibers of three species of plants in the Trowbridge Collection: Pawpaw (*Arundinaria tecta*), Cane brake (*Asimina triloba*) and Yucca (*Nolina georgiana*).

In the present examination all the above fibers except Yucca and feathers were found in the Oklahoma University collection. In addition muskrat, deer, bison, and human hair were found. In the Hamilton Collection, also accumulated before the University took over in 1935, Yucca was found. The animal fibers were feathers and rabbit exclusively.

In preparing plant fibers for identification the material was macerated in 10% KOH, or in a weaker KOH solution if the material was much decayed. (Animal fibers dissolve in KOH.) The macerated fibers were then placed on a slide in tertiary butyl alcohol and allowed to dry. When dry a drop of xylol was added, drained off, and a balsam-xylol mixture used for mounting the cover slip. Preparation of the animal fibers consisted of placing a piece of the textile on a slide in tertiary butyl alcohol and allowing it to dry. Then a drop of xylol was added, drained off, and the balsam-xylol mixture used for mounting the cover slip. Unknown material was checked against known fiber mounts.

Due to weathering and decay the scales on the unknown animal fibers are poor for identification. Also much of the pigmentation is destroyed. The ratio of the cortex to the medulla in the diameter of the fiber and the type of medullation are the only constant features. By examining all fibers on the slide closely for remnants of scales and pigment characters, as well as medullation, identification is not impossible.

A key of the fibers identified has been made and a key of animal fibers used as check material is also available.

An entirely different kind of textile remains to be examined. The specimens are charred and require a different technique. All fibers so far examined, however, are from plants and animals that were present in the prehistoric Spiro environment.

## THE EFFECT OF SAPONIN ON THE PERMEABILITY AND RESPIRATION OF CHICKEN ERYTHROCYTES

*By* S. B. Barber, Elinor Suitor, *and* F. R. Hunter

Chicken erythrocytes were exposed to hemolytic concentrations of saponin.

The saponin was allowed to act for a time sufficient to alter the membranes of the cells, as indicated by permeability studies, but was removed before the majority of the cells had been hemolyzed. These cells, suspended in isotonic salt solution, could be maintained, for further study, for several days. It is believed that saponin acts on the lipoidal constituents of the cell membrane. Permeability studies, however, showed that saponin treated cells were more permeable than were controls to both lipoid soluble and lipoid insoluble non-electrolytes such as glycerol, monoacetin, diacetin, and malonamide. Oxygen consumption measurements demonstrated that these cells respired less rapidly than did those with unaltered membranes. The differences in rate varied from a very slight change to a rate that was 15% of the controls, depending on the concentration of saponin used and the length of time it was allowed to act. Glycolysis measurements also showed a decrease in rate of metabolism with a similar range of variation. The fact that treatment of the erythrocytes with saponin brought about both an increased permeability and a decrease in metabolism does not necessarily indicate that there exists a casual relationship between the two.

## RACIAL PROBLEMS IN THE GRASS *Bromus carinatus* Hook. & Arn.

*By* Jack R. Harlan

Ten races of this species were studied in detail both morphologically and physiologically. Observations were also made on the behavior of numerous other races. Differentiation was found to be both adaptive and non adaptive. The distribution and ecological implications are briefly discussed.

## SEEDLING ANATOMY OF *SOPHIA sp.*

*By* Robert Spensley.

The root tip has three histogens: (1) dermatogen-calyptrogen (2) periblem and (3) plerome. The vascular tissue of the mature root is a diarc protostele. Vascular tissue of the stem consists of a dissected siphonostele which is differentiated downward against the two cotyledionary bundles. Each cotyledionary bundle is mesarc and bicollateral, being composed of one xylem and two phloem groups. The xylem of the cotyledons is differentiated downward against the xylem of the root. One phloem group of a cotyledon differentiates against one of the two groups of phloem in the root, and the other cotyledionary phloem group differentiates against the opposite group of the root phloem.

## A SEALED CHAMBER FOR ASEPTIC SURGICAL OPERATIONS

*By* R. Forrest Davis

The Carrel-Lindbergh organ culture technique requires that the organ which is to be perfused shall be protected from the contamination which exists even in the relatively clean air of the ordinary operating room. This is due to the fact that, while an infection would be readily overcome by an intact animal, the smallest infection would grow in an isolated organ and spoil the organ culture experiment.

To solve the problem of asepsis, a small hermetically sealed chamber was designed in which operations can be performed under aseptic conditions. The operating chamber has sheet iron bottom and sides and a plate glass top. Rubber sleeves terminating in rubber surgeon's gloves are sealed into the sides of the chamber. The inside walls of the chamber are sterilized by washing with antiseptic solution, and the air is sterilized with an antiseptic spray.

The use of the chamber does not prejudice the freedom of movement of the surgeon's arms or hands in any significant way. The operating field remains clearly visible through the plate glass. Tests of the air inside the operating chamber with nutrient agar plates, showed that after spraying, the air was practically sterile.

* * *

## OBITUARY

### Charles W. Lines, Jr.

The many friends of Charles W. Lines, Jr., Zeta Chapter's delegate to the National Convention, were shocked to learn of his death on January 9, 1942, from injuries received in an automobile accident, while returning to Madison from Dallas. Mr. Lines' home was in DuBois, Pennsylvania.

After receiving his B. A. in Botany from Pennsylvania State College in 1939, Mr. Lines continued there for one semester as a graduate student before going to the University of Wisconsin as a Graduate Scholar, and later, Teaching Fellow, in plant physiology. Though only 21 years old, he would have received the Ph. D. degree in June, 1942.

Mr. Lines held memberships in Phi Beta Kappa, Sigma Xi, Phi Kappa Phi, Phi Sigma, The American Association for the Advancement of Science, the Limnological Society of America and the American Society of Plant Taxonomists.

His associates will remember him long for his intellectual keenness, his simplicity and integrity of character, his friendly helpfulness, his wholesome outlook on life, his unfailing industry, and his quiet but captivating sense of humor.

## IN MEMORIAM

Malcolm J. Brumwell, First Lieutenant United States Infantry, killed in action at Pearl Harbour. Lieutenant Brumwell was completing work for the doctorate degree, in zoology, at the University of Kansas prior to his call to the army. His death will be a loss not only to Kappa Chapter but also to his field of zoological research.

# Chapter News Letters

## Beta

### —University of Michigan

Beta Chapter has enjoyed a number of interesting lectures during the year. Prof. H. H. Bartlett, chairman of the Botany department, opened the year's program November 15 with a talk on "Recent Work on Rubber." Prof. Bartlett's work on rubber in the Phillipines last year made this talk particularly significant. On December 3rd. Frank Craighead, a graduate student, talked on "Falconry in India," and illustrated his talk with colored slides made while he was in India. "A Universal Serological Research" was the title of the talk by Dr. Reuben Kahn of the University Hospital on December 17th.

As is its custom, in addition to the above mentioned lectures Beta Chapter sponsored an open meeting to which the general public was invited. At this meeting, January 13th, Dr. Paul B. Sears of Oberlin College talked on "Theories of Post Glacial Climate." This talk was followed by a general discussion stimulated by the ideas propounded in the lecture. Forty-five new members were initiated on January 28th. At this initiation meeting Walter Hastings of the Michigan Conservation Department spoke on "Conservation in Michigan and Labrador."

HARRIETT SMITH,
*Corresponding Secretary.*

## Epsilon

### —University of Denver

Mr. Joseph Bixby, City Forester of the City and County of Denver, will discuss "New Developments in Forestry and Horticulture" at the initiation banquet January 23rd. At this time Epsilon Chapter will welcome into membership Carol Hilderman of Denver, Lynn Keys of Portuguese E. Africa, Gwen Mallory of Alliance, Nebraska, Sadao Masuko of Hirosaki, Japan, Mary Gunckel of Colorado Springs, Colorado, and Kenneth Dumars of Englewood, Colorado.

The Vice-President, Don Guthrie, was called to service at the end of last quarter. Nathan Bogard is holding that office temporarily until a new election is held.

ELIZABETH LOVE,
*Corresponding Secretary.*

## Eta

### —University of Akron

*President*—George Anastos
*Vice-President*—Richard Weaver
*Secretary-Treasurer*—Robert Glasgow

Eta Chapter announces the initiation of Charles St. John, Sergius Mamay, and Dorothy Walton (graduate assistant in the Biology Department), and the pledging of Louise Walker.

Research Problems:

Charles St. John—Forced Orientations of Paramecia in Response to External Stimuli.

Sergius Mamay—Cultivation of Moss Protonemata.

Dorothy Walton—Building Immunities in Protozoa.

On December 11th Phi Sigma and the Biology Club jointly sponsored a banquet in the Student Building. After the dinner Dr. Kenneth Kelly of Kent State University spoke on "Interesting Phases of Experimental Horphology." Later on in the evening the three above mentioned members were initiated into the Chapter.

George Anastos was our official delegate to the Dallas meetings.

ROBERT GLASGOW, *Secretary.*

# Kappa

## —University of Kansas

Fall initiation was held December 3, 1941. The following were initiated:

Dorothy Dee Dixon—Bacteriology

Theodore Downs—Zoology

Carrie C. Gillaspy—Zoology

Seymour Sanford Kalter—Bacteriology

Kenneth Boyd Moore—Psychology

Carl S. Packer—Psychology

George Clark Rinker—Zoology

Evan Ray Stevens, Jr.—Psychology

Dorothy Miksch Sutton—Psychology

Glenn Ervin Turner—Botany.

At the initiation banquet Dean H. R. Wahl of the University of Kansas Medical School spoke on the field of research from the medical point of view.

Kenneth Moore and Carl Packer gave papers at the January meeting dealing with the effect of varying temperature conditions on the behavior of the white rat.

We are making plans to bring Dr. Olin Sewall Pettingill of Carleton College, to the University in February for a lecture of ornithological interest. Dr. Pettingill is known for his unusually interesting color films of birds in their native habitats. Since his lecture is of a popular character it will be open to the public.

FLORENCE E. DILL, *Secretary*

# Lambda

## —Montana State University

The formal initiation of the new members of Lambda Chapter of Phi Sigma was held at the United States Public Health Service's Rocky Mountain Laboratory at Hamilton, Montana.

Before the initiation, members of Phi Sigma were conducted on a tour through the laboratories. Various rooms and departments were visited—the function of each unit being explained by the person in charge. Among the various rooms visited were the animal rooms, housing thousands of rats, mice, and guinea pigs and also some thirty odd monkeys, all of which are used for experimental purposes. Members also "enjoyed" the sight of more than 20,000 ticks, dead and alive, all collected in one small room. Here, ticks from all countries of the world are represented in perhaps the most extensive tick collection in the world.

Other rooms visited included the yellow fever room and the museum containing mounted specimens of western carriers of the tick.

Following the conducted tour, the initiates were formally inducted into the Lambda Chapter and were presented their certificates by Dr. R. R. Parker, Lambda honorary.

Upon the conclusion of the initiation, the meeting was adjourned to the Federated Church where a very enjoyable banquet was ready, having been prepared by the Women's Club of Hamilton.

Upon the conclusion of the banquet, Robert Howard, in the capacity of toastmaster, introduced the speakers of the evening. First introduced was Allen Bond, vice-president, who welcomed the new members into the chapter. Next Bob called on Vivian Medlin, secretary, who gave a brief synopsis of the history of Phi Sigma. Arthur DeBoer was next introduced by the toastmaster and spoke on the behalf of the initiates.

Mr. Howard then introduced Hazel Hayden, President of Lambda Chapter, who in turn introduced the main speaker of the evening, Dr. Ernest O. Melby, President of Montana State University. The theme of Dr. Melby's talk was "The Place of Biology in a General Education." Dr. Melby emphasized the importance of a liberal education in biology for both men and women. He stressed the need that prejudices preventing women from taking biology because it is a "hot" course should be banished from institutions of higher education.

Following Dr. Melby's wonderful talk, Dr. Severy, chairman of the Biological Science Department, spoke on the place of Phi Sigma on the campus of Montana State University.

Of the initiates elected to Lambda Chapter, the following were present at Hamilton for the formal initiation: Rollin Baggenstoss, Arnold Bakken, Arthur DeBoer, Arthur Beattie, Warren Bradeen, Carleen Heinrich, Ruth Hogan, John Lhotka, Robert Greene, Teresina Patino, Albert Picchioni, and Everett Sanderson. Faculty members who were inducted into the chapter were Mr. Charles F. Hertler, Physical Education, and Mrs. Alva S. Fatzer of Home Economics.

The first meeting of the winter quarter was a joint meeting of Lambda Chapter and the Pre-Med Club. A very interesting talk by Mr. Glen M. Kohls, was given on the work being done at the Health Service Laboratories.

The next regular meeting of the chapter was devoted to a report by Miss Vivian Medlin and Dr. Fred A. Barkley of the National Meeting at Dallas, Texas. Dr. Barkley announced the initiation at the meeting of Dr. M. Ruiz Castaneda of the University of Mexico as honorary member of Lambda Chapter. Miss Medlin, secretary of the chapter, was the official representative of Lambda; while Dr. Barkely is national Vice-Chancellor.

J. E. SCHMAUTZ,
*Editor of Newsletters.*

# Pi

## —Emory University

*President*—Caryolyn Wood Forman
*Vice-President*—Charles Jennings
*Treasurer*—Joseph Thomas Brock
*Recording Secretary*—George Washington Siple
*Corresponding Secretary*—Beryl L. Healy

# Rho

## —University of Illinois

Rho Chapter has enjoyed an active program this Fall. At the first monthly meeting Professor F. P. Shepard of the Geology Department spoke to the group on submarine canyons along the California coast. He has been on leave of absence from the University and has spent the time at the Scripps Institution of Oceanography at La Jolla where he has been interested in the physiography and mode of origin of these canyons.

At the November meeting Mr. R. E. Hesselschwerdt, of the Illinois State Natural History Survey, showed motion pictures of the restoration of game life on an experimental refuge established on a section of intensively farmed land east of Urbana.

The Fall Initiation Banquet was held on December 15th when seven new members were initiated into the society: John C. Ayres, Abraham Eisenstark, Benjamin E. Gordon, and Patrick G. McGowan from Bacteriology; Robert A. Conover from Botany; and C. Owen Williams from Zoology. Dr. Martha R. Barnes was admitted to faculty membership. The speaker of the evening was Professor Carl G. Hartman, new head of the Zoology Department, coming to Illinois from the Department of Embryology of the Carnegie Institute of Washington in Baltimore. He gave an interesting illustrated discussion of the subject: "The Physiological Similarities and Dissimilarities of Monkeys, Apes, and Man."

The January meeting will feature Professor F. W. Tanner, head of the Bacteriology Department, who will talk on the very practical subject, "The Preparation of a Manuscript." Dr. Tanner is editor of "Food Research;" and the author of several textbooks and many papers.

One of the most interesting and enjoyable of our recent meetings was the May meeting closing last year's activities. At that time Mr. J. Murray Speire conducted the group on a bird hike in the late afternoon. More than 20 species of birds were seen and identified. A wiener roast around an open fire ended the evening to everyone's satisfaction.

A number of Phi Sigma members attended the Dallas meetings and reported them as being very good. Miss Marian F. James, third year graduate student in Zoology, was Rho Chapter's delegate to the Phi Sigma National Meetings held immediately after the A. A. A. S. meetings. Her report will be given at the January meeting of the Society.

RALPH D. LOWELL, *Secretary.*

## Upsilon

### —Miami University

Upsilon Chapter is approaching the close of an interesting and active semester. Thursday evening, October 16th, Dr. S. R. Williams, retired head of the Miami Zoology Department, spoke upon the history of William Bebb's School, a fascinating subject. November 16th, Major Dill, of Wright Field, delivered an enlightening address upon the physiology of shivering (physiological effects of cold and high altitudes) with reference to aeronautical research. He served as speaker for our initiation banquet. December 11th, Dr. Younker, well-known botanist and scholar, presented slides and a lecture on the South Sea Islands. December 18th, Karl Maslowski, a popular young naturalist and excellent photographer, presented a program entitled "From Seashore to Glacier with a Naturalist," to which the public was invited. January 15th, we shall have with us Dr. Vinton Siler, of the University of Cincinnati, who will speak upon modern trends in medicine.

HARLEY P. BROWN,
*Corresponding Secretary.*

## Alpha Alpha

### —University of Southern California

The first meeting of the year was opened with a talk by Mr. John Garth, giving a short resume of his research on crabs, done in connection with work for his Ph. D. degree. Mr. Garth is a member of the Hancock Foundation at the University and has been on many expeditions with the Foundation group to such places as the Galopago Islands and down the coast of Peru. Members also brought to this meeting some of their best Kodachrome shots of the summer; these were projected and were enjoyed by everyone there.

Approximately 90 persons attended the meeting at which Dr. Harold Child Bryant spoke on the value of the nature program. Dr. Bryant is now superintendent of Grand Canyon National Park and was for eight years assistant director of the national park service and chief of the branch of research and education. "Education," Dr. Bryant defined, "is the ability to read understandingly, to think accurately, and to act wisely." At this same meeting Audrey Streedain was elected our delegate to the national convention at Dallas. In addition to Miss Streedain, Fenton Feeney, Samuel J. Pusateri, and Mrs. Tema S. Clare expect to attend the meetings at Dallas.

Dr. Spencer Atkinson of the University of Southern California Dental School spoke on Orthodontia to the group on November 14th. Photography being one of Dr. Atkinson's hobbies, his talk was illustrated with splendid lantern slides demonstrating formation and growth of teeth in the jaw from birth to the emergence of the permanent teeth. He stressed the fact that it is only in the last four or five years that we have begun to gain a knowledge of how teeth in the young person are formed and developed and that there is still much to learn in this direction.

The next meeting is to be a panel discussion led by Dr. George R. Johnstone of the Department of Botany. The subject is to be "Recent Development in Plant Production." Principal speakers will be Dr. H. E. Hayward, now stationed at the Regional Soil Salinity Laboratory, Riverside, formerly of the University of Chicago; and Dr. J. F. Wohnus of the Scripps Institution of Oceanography.

RUTH GARDNER,
*Recording Secretary.*

## Alpha Epsilon

### —University of Pittsburgh

Two members have entered into matrimony recently. The first was Lawrence Jablonski, who married Miss Jean Foster, and the second was Mr. William Jablonski, who married Miss Dorothy Makara. Best wishes.

Dr. Edna Higbee presented two papers at the recent meetings of the A. A. A. S., "Effects of Colchicine Injections into One and Two Day Old Chicks" and the other "Histological Studies of Gonads and Combs of Chickens Treated with Colchicine During Embryonic Develoment" was a joint study with Mr. John O. Neal.

Dr. T. W. Walley Williams Jr. delivered a recent address to the Biology Seminar on his work in staining and preparing vertebrate material for study. Dr. Williams' technique is a new method worked out by him.

Albert G. Smith was the Chapter's delegate to the National Meetings held at Dallas on January 1st.

Alpha Epsilon Chapter has had several out of town Biologists as speakers at the recent meetings. A program has been arranged to try and cover as many branches of Science as possible.

The Initiation Banquet is scheduled for February 13th, at which 15 new members will be initiated. Dr. Emmett R. Dunn, head of the Biology Department at Haverford College, will be the speaker.

ALBERT G. SMITH,

ALBERT G. SMITH,
*Corresponding Secretary.*

## Alpha Kappa

### —Hunter College

Professor Bernice L. Maclean, faculty sponsor, was recently elected chairman of the Biology Department. This will no doubt result in an improvement in the state of affairs and help overcome the rather inactive state into which the chapter has been of late. It has been doubly hard to keep the spirit of the society up to the point where we would like to see it as all but a very few of the members are graduates. We are happy to report that this coming May will mark the 10th anniversary of Alpha Kappa; we are planning a program that should do justice to the occasion.

We would appreciate suggestions from other chapters as to how we may keep our chapter from becoming a prey to the lethargy which threatens it.

HELEN J. KALINSKY, *Secretary.*

## Alpha Mu

### —Oregon State College

At the annual fall banquet for initiates, Alpha Mu welcomed eight members into the organization:

Winston Banko, junior in Agriculture.

Richard T. Davis, senior in Science

Donald C. Dickey, senior in Agriculture.

Seymour Dombroff, graduate student

Mrs. Hsiu Hsiao, graduate in Home Economics.

Irwin Marks, graduate in Entomology.

John W. Southworth, senior in Agriculture.

David H. Williams, senior in Agriculture.

The first of our planned series of discussions on Biology and War was received eagerly by members of Alpha Mu Chapter. Dr. Glenn A. Bakkum, Professor of Sociology, discussed the Sociological Implications of the Human Race. Dr. Elmo Stevenson, Professor of Science Education, discussed Eugenics and War from the Standpoint of the Biologist, and the Pathological aspects were given by Dr. Nathan Fasten, Professor of Zoology. After the opening discussions by each of the preceding men, the members asked questions, and discussed additional items of importance.

Since Mr. Marks was initiated into Alpha Mu Chapter of Phi Sigma he has been called into the Navy under the V-7 classification.

(MRS.) CLARA BUDLONG YOUNG,
*Secretary.*

## Alpha Xi

### —Rhode Island State College

This year the Alpha Xi Chapter has started a project program. Every member is doing work in the field in which he is interested under the supervision of faculty members who give advice and extend limited aid. In this connection preparation is being made for the exhibit at Brown University.

Requirements for eligibility for membership have been changed so as to include those students showing interest in research as well as those maintaining a *B* average in Biology for four semesters. This ruling includes graduate students.

At the first meeting with new members, President Johnstone explained the purpose of the society and activities of the members at Rhode Island State College. Members gave short talks on summer work and problems in biology. New members were given a list of suggested projects and advisors and started on their project work.

Several speakers have entertained us at meetings during the year. Dr.

Wright spoke on "The Great Swamp," Dr. DeFrance told us about chemical methods of controlling and growing grass, Mr. Gordon showed pictures pertaining to Botany, and, Dr. Frank Schlenker spoke on research.

Plans are being made to publish our annual, *THE CELL*, which consists of articles written by the members and things of interest in the class.

MARY D'ARCY, *Secretary.*

## Alpha Pi

### —University of Colorado

At the first official meeting of the Alpha Pi Chapter of Phi Sigma on May twenty-fourth at the University of Colorado, nineteen members were initiated by the National Secretary, Dr. A. I. Ortenburger.

Preceding the initiation, Dr. Ortenburger read the Constitution and By-Laws, explaining the history of the organization and indicating its purpose. The charter members initiated were Dr. Edna L. Johnson, Dr. Gordon Alexander, and Dr. Norma LeVeque, faculty members: Denton Anderson, Frances Birk, Catherine Brown, August Conklin, Forrest Davis, Norman Dondelinger, Earl Flanagan, Mary Eleanor Humphries, Margaret Kelsall, Verna Mace, Jessie Meador, Richard Nilsson, Dorothy Riggs, Wesley Snively, Bruce R. Snow, and James Wood. The sponsor is Dr. E. D. Crabb of the University of Colorado Biology Department. Dr. Robert W. Penack, Miss Luella Hamilton, and Dr. E. D. Crabb, members of chapters other than Alpha Pi, were guests at the ceremony. Three members of the University of Denver, Frances E. Becker, Dr. Owen, and Lorin Mickey, attended.

*Reading from left to right in the picture: Front row; Catherine Brown, Verna Mace, Bruce R. Snow, Frances Birk, Dr. Norma Le Veque, Mary Eleanor Humphries, Margaret Kelsall, Dorothy Riggs, Jessie Meador, Denton Anderson. Back row; Wesley Snively, James Wood, Richard Nilsson, Forrest Davis, Earl Flanagan, August Conklin, Dr. Edna L. Johnson, Norman Dondelinger and Dr. Gordon Alexander.*

Following the initiation these officers were installed:

Margaret Kelsall, President
August Conklin, Vice-President
Catherine Brown, Secretary
Earl Flanagan, Treasurer.

After the business of the day, Dr. and Mrs. Gordon Alexander entertained with an enjoyable buffet supper at their home.

At the first meeting of the school year 1941-2 on October 14th, an interesting talk was presented by Dr. Gordon Alexander on the meeting of the American Ornithological Society which he attended in Denver. Dr. Alexander summarized several of the papers presented at these meetings to give an idea of their scope.

Two graduate students spoke at the following meeting of the Society. Fred M. Packard entertained the group with a discussion of the Rocky Mountain Parks and their wild life problems, with emphasis on the sheep of the parks. Fred's pictures and slides which accompanied his talk were particularly good and illustrated beautifully the true grandeur of the mountains of Boulder and vicinity. The second speaker, Miss Luella Hamilton, told us about the work she has done on the protozoa of Varsity Lake and reported several species for this lake which have never been found previously.

R. Forrest Davis was the delegate from our chapter to the National Meetings held at Dallas, Texas. Catherine Brown was chosen as the alternate.

On November 18th Alpha Pi Chapter held its first initiation since the installation of its chapter last spring. The impressive ceremony was held in Memorial Building. The new members are: Donald Magoon, Aaron Lipsker, Dolores McAninch, Mary Elizabeth Eshelman, Belden Lerner, and Vernon Lokard.

Following the initiation, a banquet was served in the Gold Room of Memorial. The guest speaker was Doctor Edwin R. Kalmbach, regional director of the Fish and Wild Life Service. Dr. Kalmbach, it will be recalled is the designer of the duck stamp this year and is an artist of no mean ability, as well as a scientist. He explained some of the problems of wild life in this territory which he and his trained staff are dealing with.

CATHERINE BROWN, *Secretary.*

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# New Books

*Except for the signed Reviews, the thumbnail sketches of current biological literature appearing in this section are not meant to be exhaustive or deeply critical. They aim to survey the rapidly growing field of biology. Naturally these reviews represent the candid opinions of various readers not necessarily those of the National Council, nor even those of the editor.*

## BOOK REVIEWS

Except for the signed Reviews, the thumbnail sketches of current biological literature appearing in this section are not meant to be exhaustive or deeply critical. They aim to survey the rapidly growing field of biology. Naturally these reviews represent the candid opinions of various readers not necessarily those of the National Council, nor even those of the editor.

### THE FLOWER FAMILY ALBUM,

Helen Field Fischer and Gretchen Harshbarger, *The University of Minnesota Press, 1941. Price $2.50.*

This is a unique book on wild flower identification. It is not only attractive to the eye, but usable to the novice who knows none of the technicalities of flower determination.

The various families of flowering plants are given a page or two each and on the opposite page, one finds excellent pen and ink drawings of the flower. Hence, if you wish to identify a plant, you simply match it up with its picture and learn its common and scientific name. Then, by glancing at the page opposite its picture, you can find interesting facts about its economic importance, growth habits and various other data pertaining to it.

One word of caution, however, must be given. It contains only the most common wild flowers of the Gray's Manual region. Don't look for those of other regions.

For the general biologist, high school science teacher, amateur botanist and inexperienced student this book is unexcelled.

### THE COMPARATIVE PHYSIOLOGY OF RESPIRATORY MECHANISMS.

Krogh, *August, 1941, University of Pennsylvania Press. Price $3.00.*

A series of lectures delivered at Swarthmore College in the spring of 1939 by the eminent Danish physiologist is presented in this volume. The author presents an account of the enormous differences in the needs for oxygen shown by different organisms and under varying conditions, the variations in the accessibility of oxygen in the different habitats occupied by the animals and adaptations of respiratory mechanisms to these widely varying conditions. He describes first the respiration of aquatic animals, reaching its highest development in the fishes, and then considers the aerial respiratory mechanisms culminating in the lungs of mammals and birds. Tracheal respiration is discussed in a separate chapter, as is the respiratory function of the blood. There are numerous illustrative charts and diagrams.

A. O. Weese.

### FIELD BOOK OF SNAKES OF THE UNITED STATES AND CANADA

by Karl P. Schmidt and D. Dwight Davis. *XIII 365 pp., 34 pl., 103 figs. New York: G. P. Putnam's Sons. Price $3.50.*

The need for a really good and compact field book of snakes has finally been filled. Although several other recent books about snakes have been published, the present volume should become the standard popular guide to the study of these interesting creatures.

The authors, in the introduction, deal at some length with such interesting items as the classification, coloration, habits and behavior, the poison apparatus, and the collecting and preserving of snakes. For the first time, a short history of the study of these forms is given.

The text, under the "Systematic Account," gives first an excellent key to the genera of North American snakes. The explanation as to the use of this and the other keys, although somewhat concise, gives an excellent guide to use. Beside the keys present throughout the rest of the volume, the authors have given a number of characters under the discussion of each species which will be of great help in distinguishing the individual species. The range for each form is also given. The authors also discuss the habits of each group of snakes.

The fieldbook is further enhanced by a number of excellent line drawings of quite a number of snakes discussed. The photographs, made in the main by the junior author, have been taken with the view of illustrating as many features as possible. There is a very good index. References to various specific papers are throughout the text, and the appendix contains a number of references to various state papers listed geographically.

This new field book should prove of immense value, not only to scientists but to laymen as well. It is compact enough to be carried very easily, and has evidently been planned in format to be of the best use in the least possible time. ALBERT G. SMITH.

### COMMUNITY HYGIENE by DEAN FRANKLIN SMILEY and ADRIAN GORDON GOULD. 3rd Edition. *Macmillan Company 1941. Price $2.50.*

Community Hygiene has been a problem for centuries, even though in earliest times people did nothing about it. Today with war an actuality, community hygiene takes on more prominence when we think of all the hygiene problems that confront peoples, whose homes, places of business, etc., are being bombed. The tremendous numbers of army camps with their sanitary problems also come in for special attention.

In keeping with these new problems Smiley and Gould have revised their book *Community Hygiene* for the third time. They have succeeded in incorporating material into the chapters which show why we should have good physical reserves, why we should be socially minded and have the ability to take on added responsibilities by developing a sturdy nervous system for the fight which is ahead of us for the next several years.

The illustrations and charts are pertinent to the subjects being explained. The bibliography and references at the end of each chapter give a sufficient source of material so that any one subject can be greatly enlarged upon by the student.

The chapters dealing with outdoor air, indoor air, water and disease, occupational health hazards, health of school children, and doctors, nurses, and hospitals are of especial worth at this time and should be stressed.

The authors have written a COLLEGE TEXTBOOK OF HYGIENE which is a companion volume to COMMUNITY HYGIENE and a combined one-volume edition of the two books known as PERSONAL AND COMMUNITY HYGIENE. E. HIGBEE.

### FUNDAMENTALS OF COMPARATIVE EMBRYOLOGY OF THE VERTEBRATES by ALFRED F. HUETTNER. *The Macmillan Company. 1941. Price $4.50.*

A book to be kept on the shelf of every Comparative Embryologist for constant reference and to be used by all students of embryology either comparative or general, as the cross sections of the various embryos are of invaluable use. They are clear cut and easily understood. The majority of these sections are excellent for comparison for any one working in experimental embryology. The first four chapters have diagrams, and explanations which also are of worth to students of cytology and genetics, as they deal with the cell and all the stages of mitosis, going on into a discussion of the development of sex. The other chapters of the book are worthy of the attention of students of comparative anatomy as they describe and explain the development of a sufficient number of vertebrate forms to enable the students to get a foundation in the general development of each, that will help them compare and understand the further complicated development of each form, and make comparison of these forms much easier.

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